

# THE ANNALS

AND

## MAGAZINE OF NATURAL HISTORY.

[SEVENTH SERIES.]

No. 10. OCTOBER 1898.

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XXXII.—*On some new Earthworms in the British Museum.*

By DANIEL ROSA, D.Sc., Assistant in the Royal Zoological Museum, Turin.

[Plate IX.]

THROUGH the kindness of Prof. Jeffrey Bell I have received for identification a small collection of earthworms from various parts of the world.

In this collection, which belongs to the British Museum, fourteen species are represented, of which seven prove to be new to science. These species I propose to describe in the following pages. Mention will also be made of the already-known species in this collection and of their localities.

*Anteus potarensis*, sp. n. (Pl. IX. figs. 1-3.)

*Hab.* Higher Potaro River Districts (British Guiana). Collected by Rose Lloyd; presented by J. J. Quelch, Esq.

The examination of this worm has convinced me that the conclusions I had arrived at\* regarding the general characters of the genus *Anteus* were correct. In my chapter on the

\* Mem. R. Accad. Sc. di Torino, ser. ii. t. xlv. 1895, p. 115.

organization of *Anteus* I have urged that, in spite of several statements to the contrary which have been made, we must assume that in *Anteus* the first pair of nephridiopores are always to be sought for on the third segment, and that, therefore, in front of the first pair of nephridiopores we must admit the presence of two segments, which in many cases may be hardly recognizable, as they are short and capable of being introverted, so that the secretion of the first nephridia may flow into the buccal cavity.

I have shown that if we admit this point we find that, with regard to the internal organs, the species of this genus agree very closely, while if we are guided by the actual descriptions we shall be compelled to admit profound discrepancies between the various species.

These views are conclusively supported by the examination of this new species, which shows the leading characters in a remarkably clear way.

This species is of considerable size, measuring 380 millim., with a diameter of 13 millim. (at the level of the clitellum). There are only 170 segments.

The colour (in spirit) is brown all over the præclitellian region; the succeeding part is brown only on the dorsal side, the remaining portion being much lighter coloured.

The first segment, which is only partially introverted, is very short, pale, and of a soft consistence; the second segment, too, is short, but it is already brown-coloured and more consistent; the third segment is quite normal and carries the first pair of nephridiopores. These pores are connected with the mouth by a longitudinal (nephrobuccal) groove, which is well marked on the second somite, while on the first somite, owing to its soft consistence, the groove cannot be further traced.

The prostomium is small and partially retracted.

The ventral setæ are visible from the third segment backwards, the dorsal setæ from the fourth or fifth; they are all paired, the dorsals, however, more closely than the ventrals. This applies to the anterior portion of the body; on the posterior portion the two setæ of the dorsal pairs are wider apart than the ventrals, which retain the primitive distance. The lateral interval (*bc*) is a little wider than the ventral (*aa*).

The copulatory setæ, under the clitellum, have a length of about 2 millim.; they are large, sigmoid, provided with a nodulus, and ornamented only on the extreme half of the distal portion with slight and indistinct arches.

The clitellum ends abruptly on the 27th segment, but its

anterior boundary is not well marked: however, we may assume that the clitellum extends over about eleven segments (17-27); these are not fused together. The longitudinal margins of the clitellum are indicated for a great extent by the tubercula pubertatis; they are otherwise but ill-defined.

The tubercula pubertatis form a continuous red-brown band on segments 21-27=7, and lie immediately external to the ventral setæ. This band has at its outer side a narrow white line, which can also be followed for about a segment in front of the tubercula.

The male pores are well visible as simple perforations on the tubercula pubertatis, between segments 21 and 22.

The oviducal openings, which in the majority of the other species of *Anteus* have not been detected, are here represented by two minute pores lying in the intersegmental groove 13-14 on a line with the inner ventral setæ.

Four pairs of spermathecal pores are visible between segments 5-6, 6-7, 7-8, 8-9 in a line with the dorsal setæ.

The nephridiopores lie near the anterior boundary of every segment from the third inclusive; they are, as a rule, in a line with the outer couple of setæ, but it must be noted that on the præclitellian somites they lie a little more dorsally.

There are no dorsal pores.

The septa in front of the gizzard are very thin and incomplete; the first three septa behind it (6-7, 7-8, 8-9) are also very thin, and as they are deeply infundibulated they overlap one another and form a three-fold coating on the gizzard; further on, from septum 9-10 to the end of the generative organs, the septa are, at least in their central part, somewhat thicker.

The pharyngeal bulb is but feebly developed and is followed by the first œsophageal tract, which is thin-walled and bent upon itself. The gizzard has an irregular spheroidal shape and is morphologically confined to somite vi., as I have shown to be the rule in the genus *Anteus*; its diameter reaches 9 millim.

From the sides of the second œsophageal tract arise eight pairs of calciferous glands, occupying segments 7-14 inclusive; they are kidney-shaped bodies, and by means of the peduncle attached to their hilum communicate with the cavity of the œsophagus; through this peduncle they receive from the suprainestinal vessel a lateral branch, which ramifies on their surface. The dorsal lobe of the calciferous glands terminates in an ovate appendix constricted at the base.

The true intestine begins at the 18th segment with a

strongly sacculated region, which extends over eight somites (18-25). I have found no trace of intestinal cæca\*.

The dorsal vessel, where it runs above the surface of the gizzard, is very narrow; anteriorly it soon breaks up into small branches: behind the first pair of lateral hearts it begins to increase in diameter, but it becomes markedly ampullated only in somites 13, 14, 15; posteriorly to these it retains its large diameter, but the moniliform appearance becomes gradually inconspicuous.

In each of the somites 7, 8, 9 the dorsal vessel gives off a pair of narrow lateral hearts which join the ventral vessel. Behind these, in somites 10 and 11, there are two pairs of large intestinal hearts which arise from the suprainestinal vessel.

Further back, in each of the somites 16 and 17, we notice the presence of a pair of very large lateral branches which arise, like the lateral hearts, from the dorsal vessel, and soon bifurcate and break into small branches entering the wall of the intestine. Each pair of these bifurcated vessels is evidently homologous with the two pairs of much smaller branches which arise in each intestinal segment from the dorsal vessel and give rise to the intestinal network.

The two pairs of sperm-sacs occupy segments 11 and 12; they are very large, discoidal, with a continuous outline. Each pair communicates with a pair of large sperm-reservoirs belonging to somites 10 and 11, which are fused together on the median ventral line, while the anterior ones are quite distinct from those of the second pair.

The spermathecæ (in segments 6, 7, 8, 9) are also large bodies and end in an ovate pouch not sharply distinct from its duct, which is long, about half the length of the pouch, and has no diverticula.

The first pair of nephridia are not much larger than the following; the anterior nephridia are, as usual, very long and have a longitudinal course, while the posterior ones are more transverse, but I could not determine the somite on which the nephridial cæca commence to appear.

A comparison with the diagnoses given by me in 'Terricoli neotropicali,' pp. 126-128, will show at once that the species above described is well-defined.

\* These intestinal cæca are not at all constant in *Anteus*. The contrary would appear from my expression "nel 26 segmento partono due brevi ciechi digitiformi" ('Terricoli neotropicali,' p. 122), where the word *talora* has unfortunately been omitted.

*Pontodrilus ephippiger*, sp. n. (Pl. IX. figs. 4, 5.)

*Hab.* Christmas Island (east coast). Coll. by C. W. Andrews, Esq.

The length of our specimens ranges from 43–47 millim., with a diameter of 3 millim.; the number of segments varies from 85 to 100; the colour (in spirit) is an intense yellow.

The prostomium is short, only slightly dovetailed in the peristomium, which is longer than the second segment.

The setæ are distant: behind the clitellum the ventral interval *aa* is twice that between setæ *ab*; the lateral intervals between setæ *ab*, *bc*, *cd* are about equal, though slightly increasing from below upwards; the dorsal middle space *dd* is about three times as wide as *cd*. These distances vary slightly in front of the clitellum; for instance, at the height of the spermathecæ the setæ *bc* are slightly wider apart than setæ *ab* or *cd*, so that the setæ are here paired, though, of course, not very close together.

The clitellum extends over segments 13–17=5; it may be termed saddle-shaped, ceasing near the outer ventral seta (*b*): this clitellum is well developed dorsally, where its rings are completely fused together, while on the ventral area the setæ as well as the intersegmental furrows are tolerably visible.

There is a deep transverse fossa on segment 18; the transverse margins of this fossa show a slight inward convexity, but are not specially swollen, whereas the longitudinal margins, which overhang the fossa, are in fact the ventral end of a pair of large glandular swellings which are also visible from the dorsal side, where they gradually disappear near the outermost setæ (*d*). The whole has much the appearance figured by Akira Jizuka for *P. matsushimensis*. The male openings are difficult to see lying in the fovea at the base of the overhanging walls, approximately in a line with the outer ventral seta (*b*).

A deep slit-like sucker, with pale somewhat raised margins, lies ventrally on the intersegmental furrow between segments 19 and 20, reaching laterally the line of the innermost ventral setæ.

The oviducal openings are two minute pores on the anterior part of segment 14, almost in a line (though a little ventrad) with the innermost ventral setæ (*a*).

The spermathecal pores are on small projecting tubercles between segments 7–8 and 8–9, on a line with the outer ventral setæ (*b*).

There are no dorsal pores. The nephridiopores lie at the

level of the outer ventral setæ, but I could not determine which segment bears the first of them.

Septa 5-6 to 8-9 inclusive are thin, the following 9-10, 10-11, 11-12, and also, but to a less degree, 12-13, are thickened.

A gizzard is not recognizable, but septum 6-7 is more deeply infundibulate than its neighbours, and we may connect this with the earlier existence of a gizzard in the 6th segment. There are no calciferous glands; the intestine begins behind the 18th segment, perhaps in 16 or 17.

The hearts occupy segments 11, 12, 13, the last being the largest.

The two pairs of large spermathecæ belong to segments 8 and 9; each spermatheca consists of a pyriform pouch not distinctly marked off from its duct, and of a narrow tubular diverticula which is longer than the main pouch.

The broad grape-like ovaries are readily seen in segment 13, as well as the testes in segments 10 and 11, all these gonads being attached to the anterior septum on each side of the neurochord. In front of the gonads, that is, on the anterior face of septa 10-11, 11-12, and 13-14, the funnels of both pairs of vasa deferentia and of the oviduct are plainly visible.

The small sperm-sacs in segments 11 and 12 have a botryoidal appearance.

The prostates occupy segments 16, 17, and 18, and recall very nearly those of *P. insularis* (Rosa). Their glandular portion has the appearance of a large sausage-like body, formed by the apposition of the several parts of a slightly-coiled lesser duct. The muscular duct which arises from the front end of the glandular tube is moderately bent, with the convexity inwards, and gradually increases in diameter as it proceeds backwards, reaching at last the external openings on the 18th segment.

I could not see exactly where the vas deferens joins the prostate, but I have little doubt that the connexion between both structures will be found to be the same as that which has been described by Akira Jizuka for *P. matsushimensis*.

Our species seems to be closely allied to *P. insularis* (Rosa), which I first described from specimens obtained in the Aru Islands\*, and which has been more recently found also at Ceylon (Michaelsen)†. Still a marked difference between the two species exists, as in the spermathecæ of *P. insularis* both

\* Ann. d. naturh. Hofmuseum, Wien, Bd. vi. 1895.

† Mitth. aus d. naturhistor. Museum, xiv. (Hamburg, 1897).



Michaelsen and I failed to find any diverticulum. Our specimens were not fully mature, but on the hypothesis of an identity between these two species it seems highly improbable that even in a series of sections no traces could be found of an organ which in the adult reaches so great a development. Moreover, in the descriptions of *P. insularis* no mention is made of a ventral sucker.

Another allied species is undoubtedly *P. matsushimensis*, for a clear description of which we are indebted to Akira Jizuka \*. However, this Japanese *Pontodrilus* seems to be really different from our species.

First it is a larger species than ours, as its length ranges from 90 to 110 millim., with a diameter of 3-3.5 millim., while our specimens, with a diameter too of 3 millim., have only a length of 43-47 millim. Besides it may be noted that the clitellum of *P. matsushimensis* is described as being well developed all round the body (and the same is shown by the figures), whilst in our species the clitellum is distinctly saddle-shaped. Finally the appearance of the prostate is (so far as one can judge from the figures) somewhat different.

*Perichaeta brevis*, sp. n. (Pl. IX. figs. 6, 7.)

*Hab.* Christmas Island (east coast). Coll. by C. W. Andrews, Esq.

A very small species measuring only 15-20 millim. in length by a diameter of 2-2.5 millim.; it consists of about 70-80 segments; the colour (in spirit) is a deep yellow.

The setæ on segment 25 are approximately 50.

The clitellum occupies somites 14, 15, 16.

The male pores are on high conical and almost lateral porophores, which are partially visible from behind. The boundaries of these porophores are laterally indistinct; in front and behind they are marked by the intersegmental furrows 17-18 and 18-19, which are here deflected. 14 setæ are visible between the male pores.

The oviducal pore is single and lies in a whitish spot on the 14th segment.

There are three pairs of spermathecal pores between somites 5-6, 6-7, and 7-8, close to the lateral line.

I have not been able to determine the position of the first dorsal pore. There are no copulatory papillæ.

None of the septa are noticeably thick and none are wanting.

The gizzard is between conical and tun-shaped; it is as

\* Annotationes Zoologicæ Japonenses, vol. ii. pars i. (Tokyo, 1898).

long as two somites, but is nevertheless comprised between septa 7-8 and 8-9; this last septum is pushed backwards and comes nearly in contact with septum 9-10.

The last heart lies in segment 13.

The spermathecae lie in segments 6, 7, 8; each consists of a nearly globular sac with a short narrow duct, which is connected at the inner side with a narrow tubular diverticulum; this diverticulum is straight, not enlarged at the end, and extends a little over the middle of the large sac.

The sperm-sacs in segments 11 and 12 are each connected with a minute sperm-reservoir; the sperm-reservoirs of the 10th segment are laterally produced into a large lobe, which looks exactly like another pair of sperm-sacs, but it should be mentioned that the true sperm-sacs lying in segment 10 prove to be connected with the sperm-reservoirs of the 11th, and not with those of the 10th segment.

The prostates extend through six segments; they are very irregular in shape and consist of many lobules, which are only loosely connected; the ejaculatory duct is of moderate length, sigmoid, and does not open into a muscular bulb.

This species somewhat recalls *P. acrophyla*, Rosa \*, from Sumatra.

*Perichæta recta*, sp. n.  
(Pl. IX. figs. 8-10.)

*Hab.* — ?

Of this species I have seen only one specimen, measuring 70 × 5 millim, with 110 somites; its colour (in spirit) is greyish yellow, darker on the clitellum.

The prostomium is broad and very short, extending only over one fourth of the buccal segment.

The setæ number 44 on segment v., 54 on xii., 60 on xxv.

The clitellum occupies three segments and shows no setæ.

The male pores are in a line with seta 9; they are 3 millim. apart and 12 setæ can be counted between them; each lies on a narrow, flat, round area of a brown colour.

The oviducal pore on segment 14 is surrounded by a light circle.

There are two pairs of spermathecal pores between segments 7-8 and 8-9, only 2 millim. apart, and lying in a line with setæ 6-7.

This species has a number of copulatory papillæ, which show the following arrangement: in somite ix. a median papilla lies near the posterior intersegment; three median papillæ are also to be seen respectively on somites xviii., xix.,

\* Ann. Mus. Civ. Genova, vol. xvi. 1896.



and xx., near the intersegmental groove; further there is a pair of papillæ on segment xvii. near the posterior groove and nearly in a line (a little dorsad) with the male pore, and two pairs on somite xviii. behind the male pore and making with it a regular triangle; there are thus 10 papillæ, which are all similar and look like small tubercles.

The first dorsal pore is between segments xii.—xiii.

None of the septa are noticeably thickened; septa 8-9 and 9-10 are wanting.

The gizzard is an elongate truncated cone and is placed immediately after septum 7-8; from its hind margin a number of muscular bands are given off which are attached to the body-walls. The two intestinal cæca are slightly lobulated. The last heart lies in somite xiii.

The sperm-sacs, which are tongue-shaped and thick, occupy as usual somites xi. and xii.; each of them is connected with a small sperm-reservoir lying in the front segment at the inner corner of the sperm-sacs.

The prostates extend over five segments and may be described as tolerably compact oval bodies, deeply notched as if a posterior inner quadrant had been excised; in this notch runs obliquely the ejaculatory muscular duct, which is short and fusiform.

There are two pairs of spermathecæ in somites viii. and ix.; they end in a heart-shaped sac with a duct half its length, which (at the inner side) is furnished with a diverticulum ending in a short tubular and a longer sausage-like portion. The whole of the diverticulum is twice as long as the main sac with its duct. The aspect of this spermatheca is much the same as that of the spermatheca of *P. musica*, Horst.

*Perichaeta pura*, sp. n. (Pl. IX. figs. 11-13 b.)

*Hab.* Lombok, 1500 feet (*A. Everett*).

This species was represented by one fine specimen measuring  $250 \times 11$  millim., with 92 segments; the colour (in spirit) is entirely white.

The setæ are closer together ventrally, and number 54 on somite v., 72 on xiii., 96 on xxv.

The clitellum occupies the three usual segments and bears no setæ.

The male pores, in line with seta 9, are carried on slight swellings without well-marked boundaries; between the two pores 14 setæ are visible.

The oviducal pore lies on the anterior half of the 14th segment and is surrounded by a whitish circle.

Two pairs of spermathecal pores are visible on small papillæ between segments 6-7 and 7-8, in line with setæ 8-9.

The first dorsal pore is between segments 12 and 13.

There are no copulatory papillæ.

Septa 5-6, 6-7, 7-8 are rather thickened; the four septa 10-11 to 13-14 are also somewhat thickened; septa 8-9 and 9-10 are wanting.

A greater number of strong muscular bands start from the pharyngeal bulb intersecting the septa and connecting the bulb with the body-walls, some of them reaching as far back as somite x. Another set of similar bands are given off from the hinder portion of the gizzard and are attached to the parietes of segments xi. and xii.

A dense network of blood-glands covers the anterior side of septa 5-6 and 6-7.

The gizzard is bell-shaped and extends from septum 7-8 for almost the entire length of the three segments viii., ix., and x. The large intestine commences in segment xvi.; in somite xxvi. it gives off one pair of cæca, which are simple sacs extending forward through segments xxv. and xxiv.

The last hearts lie in segments xi., xii., and xiii.

The sperm-sacs are in segments xi. and xii.; each sperm-sac is provided at its free end with a lobulate appendage, which in our specimen had a spongy appearance and was filled with gregarines (pseudonaviculæ).

The prostates are comprised between septa 17-18 and 18-19; their length is, however, equal to three segments, so that the septa are much swollen. These prostates consist of two principal and many secondary lobes, which are compressed together, so that the general outline (nearly pentagonal, with rounded corners) is almost continuous. The ejaculatory duct, which is rather short and slightly sigmoid, ends in a round muscular bulb, which is usually hidden by the prostate, as is also the duct itself.

The spermathecae are two pairs in segments 7 and 8; they are much developed and consist of an oval pouch with a duct nearly half its length; their diverticulum consists of a proximal dilated portion, of an intermediary tract, which is narrow and contorted, and of a swollen distal portion. The diverticulum is partially hidden by the nephridial tufts which cover the duct of the spermathecae.

*Perichæta Belli*, sp. n. (Pl. IX. figs. 14, 15.)

*Loc.* Mindoro, 5000 feet.

The only specimen I have seen of this species measures 75 × 5 millim.; its segments are 100 in number; the

colouring is zebra-like on the back, there being large brown bands which alternate with the light chætal bands; these brown bands are widest dorsally, in correspondence with the dorsal gaps, and are laterally evanescent.

The prostomium is short, its dovetailed portion extends over  $\frac{2}{3}$  of the first segment.

The setæ are closer together ventrally than dorsally; they number 48 on segment xii., 60 on xxv. There are no setæ on the clitellum, which occupies the three usual segments.

The male pores are in a line with setæ 6-7 and are separated by 8 setæ; these pores are not placed on prominent porophores and appear only as short slits with slightly granulated margins.

The oviducal opening is placed on a small oval tubercle contoured by a slight furrow.

There are four pairs of spermathecal openings between somites 5-6, 6-7, 7-8, 8-9, in a line with seta 8.

The first dorsal pore opens between somites 12 and 13; no copulatory papillæ.

None of the septa are thickened, two (the 8-9 and 9-10) are wanting.

The gizzard is bell-shaped, occupying nearly the whole length between septa 7-8 and 10-11.

Two simple cæca arise from the intestine in segment 26 and are seen to lie transversely on its dorsal surface in segment 25.

The sperm-sacs in segments 11 and 12 are thick, tongue-shaped, and not lobate, save for a very small terminal lobe.

The prostates are not large, between discoid and crescent-shaped, incompletely divided by a transverse groove. The ejaculatory duct arising from their notch is very short and slightly sigmoid, terminating in a spherical bulb.

The main sac of the oval spermathecæ is anteriorly enlarged; its duct is short and thick and gives off from the inner side a tubular diverticulum, ending in a slight dilatation; this diverticulum (which is usually bent at an angle) is, if straightened out, equal in length to the main pouch with its duct.

This species seems to come near to *P. Floweri*\*, Benh., which, however, differs externally, having a clitellum provided with setæ (on the 16th segment) and not stretching over the whole of segments 14 and 16. *P. Floweri* differs, too, in the number of the setæ, which on the xxvth segment only amount to 45, while in our species they number on the xxvth segment as many as 60. The internal differences consist in the absence (in *P. Floweri*) of a muscular

\* Journ. Linn. Soc., Zool. vol. xxvi. p. 217.

duct at the end of the ejaculatory duct, and in the shape of the spermathecæ.

*Perichæta zonopora*, sp. n. (Pl. IX. fig. 16.)

*Hab.* — ? (with *P. recta*).

Of this species I have been able to examine several specimens measuring 80–90 × 4 millim., with 105–110 segments; the colour (in spirit) is light fleshy grey.

The prostomium is small and dovetailed in the first segment for one third of the length of the latter.

The setæ number 30 on segment v., 44 on xii., and 60 on xxv.; they are closer together ventrally.

The clitellum extends over three entire segments, without visible setæ.

The large male openings are on yellow, radially corrugated areas which extend to the intersegmental furrows; the pores are in a line with seta 7; between the two pores there are six setæ.

The oviducal pore on segment 14 lies in a darker oval arcola surrounded by a light ring.

The spermathecal pores (one pair only) lie between segments vii. and viii. at the level of the 9th seta.

The dorsal pores begin between segments 11–12; in all the specimens these pores are conspicuous also upon the girdle, a character which is rarely met with among *Perichæte*. There are no copulatory papillæ.

Septa 5–6, 6–7, and (a little more) septa 10–11, 11–12 are thickened, but not very much; septa 8–9 and 9–10 are absent or rudimentary.

The gizzard is long, tun-like, and comes immediately after septum 7–8; the two intestinal cæca are simple.

The last heart is in segment xiii.

The two pairs of sperm-sacs occupy segments 11 and 12; they are but little developed.

The prostates extend through three segments; they are relatively narrow, with two deep notches on the outer side; the ejaculatory duct is very long, U-shaped, and terminates in a moderate bulb. The inner wall of the body presents at the inner (mediad) side of the bulb a glandular swelling, which is enlarged in front of the bulb and behind it, so that its outline recalls that of a figure of 8.

The only pair of spermathecæ, which opens between segments 7–8, does not lie in segment 8 but in segment 7, that is, the spermathecæ lie in front of the groove which bears their external openings and not, as usual, behind it. They

consist of an ovate sac, from the anterior larger extremity of which arises a thick duct, the length of which is only a little less than that of the sac; the diverticulum is equal in length to the main pouch with its duct, and consists of a narrow nearly straight tube with a small terminal dilatation.

I am not aware of more than ten species of *Perichæta* with only one pair of spermathecæ opening between segments 7 and 8; of these species only *P. novaræ*, Rosa (= *P. taitensis*, Grube, partim), and *P. sangirensis*, Michaelsen, may suggest an identity with our species.

Unfortunately we know nothing concerning the anatomy of *P. novaræ* \*, as I did not like to injure the only specimen that had come into my hands (it was one of the two types of *P. taitensis*, under which name Grube has confounded together two distinct species). Nevertheless I believe that we can discard the idea of an identity between *P. novaræ* and *P. zonopora*, as *P. novaræ* shows no dorsal pores upon the clitellum, while *P. zonopora* [as well as *P. Grubei*, Rosa (*P. taitensis*, Gr., partim)] shows them very clearly.

As to *P. sangirensis* †, it is a larger species, provided with a smaller number of setæ and also with large sperm-sacs and sperm-reservoirs. The ejaculatory duct, too, differs, being described by Michaelsen as short (and therefore probably straight); moreover, no mention is made by Michaelsen of the presence of dorsal pores upon the clitellum.

*Perichæta peguana*, Rosa ‡.

*Hab.* Chantaboon (Siam).

This species was described by me eight years ago from specimens collected by Signor L. Fea at Rangoon.

In the specimens from Chantaboon the copulatory papillæ lying on the intersegmental grooves between segments 17–18 and 18–19 show a very convex surface, and are surrounded by a slightly raised ridge, giving them an eye-like appearance.

As regards the internal characters I have been able to satisfy myself that the gizzard belongs to the 8th segment (not to the 9th), and that the missing septa are those between segments 8–9 and 9–10.

*Perichæta posthuma*, Vaill.

*Hab.* Christmas Island.

\* Ann. k. k. naturh. Hofmuseum, Wien, Bd. vi. p. 396.

† Jahrb. d. Hamburg. wiss. Anstalten, viii. p. 36.

‡ Ann. Mus. Civ. Genova, ser. 2, vol. x. (1890) p. 113.

*Megascolex armatus* (Bedd.).

*Hab.* Christmas Island.

*Microscolex dubius* (Fletch.).

*Hab.* Colon, near Montevideo. Coll. by Mr. Oldfield Thomas.

*Allolobophora caliginosa* (Sav.).

*Hab.* Colon, near Montevideo. Coll. by Mr. Oldfield Thomas.

*Allolobophora cyanea* (Sav.), subsp. *profuga*, Rosa.

*Hab.* Colon, near Montevideo. Coll. by Mr. Oldfield Thomas.

*Allolobophora putris*?, Hoffm.

*Hab.* Behring Island.

#### EXPLANATION OF PLATE IX.

*Anteus potarensis*, sp. n.

*Fig.* 1 *a.* A copulatory seta (ventral seta of the clitellum), enlarged.

*Fig.* 1 *b.* A normal seta (dorsal seta of the clitellum), enlarged.

*Fig.* 2. A calciferous gland (in somite xiv.).

*Fig.* 3. A spermatheca.

*Pontodrilus ephippiger*, sp. n.

*Fig.* 4. Prostate.

*Fig.* 5. Spermatheca.

*Perichæta brevis*, sp. n.

*Fig.* 6. Sperm-sacs (*rs.*), sperm-reservoirs (*cs.*), and diverticulum (*cs. div.*).

*Fig.* 7. Spermatheca.

*Perichæta recta*, sp. n.

*Fig.* 8. Copulatory papillæ behind the clitellum.

*Fig.* 9. Prostate.

*Fig.* 10. Spermatheca.

*Perichæta pura*, sp. n.

*Fig.* 11 *a.* Sperm-sacs in somite xii. (outer side).

*Fig.* 11 *b.* One sperm-sac in somite xii. (inner side).

*Fig.* 12. Prostate.

*Fig.* 13 *a.* Right spermatheca (dorsal view).

*Fig.* 13 *b.* Ditto (ventral view).

*Perichæta Belli*, sp. n.

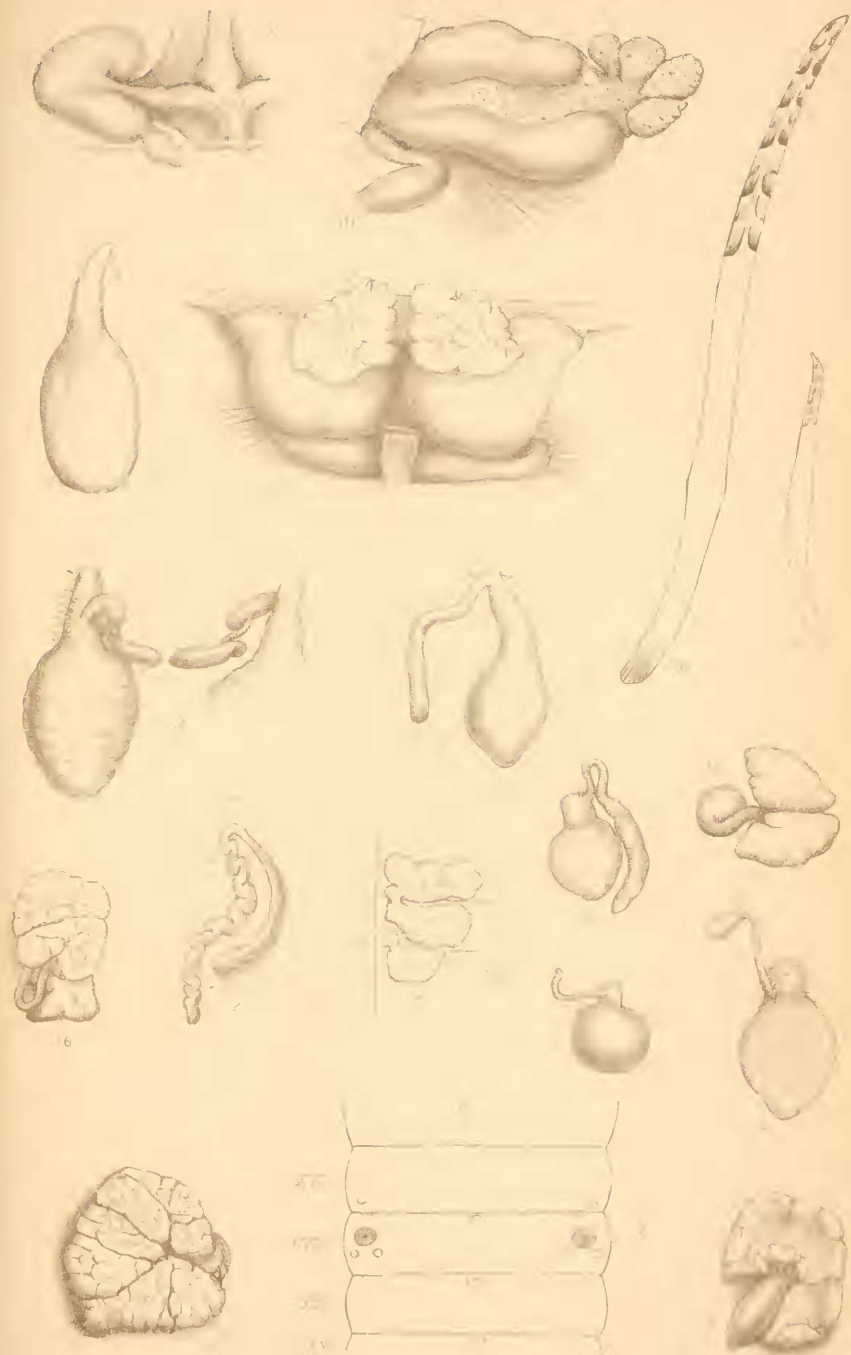
*Fig.* 14. Prostate.

*Fig.* 15. Spermatheca.

*Perichæta zonopora*, sp. n.

*Fig.* 16. Prostate.





Transverse Section of the New South Worm. W. & W. 1847.